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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,042	01/28/2004	Young Hoon Kwark	YOR920030624US1	9601
21254	7590	12/29/2004	EXAMINER ZARROLI, MICHAEL C	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			ART UNIT 2839	PAPER NUMBER

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/765,042	<b>Applicant(s)</b> KWARK, YOUNG HOON	
	<b>Examiner</b> Michael C. Zarroli	<b>Art Unit</b> 2839	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-37 and 39 is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-12, 22, 23, 26-32 and 38 is/are rejected.
- 7) ☒ Claim(s) 5-6, 13-21, 24-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 31-32 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner does not understand the term “laminations.” The examiner will interpret this term to mean that something is on the surfaces.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 8-10 and, 38 rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hata et al.

Hata discloses an interposer comprising: an array of buttons (9 & 5) on a carrier having a proximity to each other that allows contact between two adjacent buttons to occur when the two adjacent buttons are compressed above a predetermined threshold (figures 4A-4D).

Regarding claim 2 Hata discloses that the contact between the two adjacent buttons occurs when the two adjacent buttons are axially compressed above a predetermined threshold (figures 4B to 4C).

Regarding claim 3 Hata discloses that the array of buttons is arranged in a regularly spaced array (fig. 16A).

Regarding claim 4 Hata discloses that the array of buttons is arranged in a custom arrangement based upon positions of the contacts on one of a chip carrier (1) and a printed circuit board (2).

Regarding claims 8-10 Hata discloses that the buttons comprise a soft deformable metal ball (paragraph 0008 and figures in 4).

6. Claims 11-12, 22-23, 27-29 and 31-32 rejected under 35 U.S.C. 102(e) as being clearly anticipated by Matsuda.

Matsuda discloses a chip package comprising: a chip (12) having a first surface and a second surface; a printed circuit board (11) having a first surface and a second surface, wherein the first surfaces are closer to each other than the second surfaces (fig. 1D); and an interposer having an array of buttons (13) between said chip and said printed circuit board.

Regarding claim 12 Matsuda discloses that at least one button of the array of buttons is compressed between the first surfaces (also fig. 1).

Regarding claim 22 Matsuda discloses that the array of buttons is arranged in a regularly spaced array (fig. 9).

Regarding claim 23 Matsuda discloses that the array of buttons is arranged in a custom arrangement based upon positions of the contacts on one of the chip carrier and the printed circuit board (various figures e.g. figures 17-18).

Regarding claims 27-29 Matsuda discloses that the buttons comprise a soft deformable metal ball (col. 7 line 34).

Regarding claims 31-32 Matsuda discloses (as best understood) laminations formed on the first and second surfaces of the chip and printed circuit board (various figures e.g. 26).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al as applied to claim 1 above, and further in view of Hoffmeyer.

Hata only discloses that the buttons are made of metal.

Hoffmeyer discloses buttons that comprise an elastomer with embedded metallic particles (col. 1 lines 60-67).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify the buttons of Hata by making them contain an elastomeric compound having embedded metallic particles as taught by Hoffmeyer.

The motivation for this change would be to alter the signal to noise ratio of the interposer. It has been held that the material with which a device is made is not patentable matter In re Leshin, 125 USPQ 416 (CCPA 1960).

9. Claim 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda as applied to claim 11 above, and further in view of Hoffmeyer.

Matsuda only discloses that the buttons are made of metal.

Hoffmeyer discloses buttons that comprise an elastomer with embedded metallic particles (col. 1 lines 60-67).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify the buttons of Matsuda by making them contain an elastomeric compound having embedded metallic particles as taught by Hoffmeyer.

The motivation for this change would be to alter the signal to noise ratio of the interposer. It has been held that the material with which a device is made is not patentable matter In re Leshin, 125 USPQ 416 (CCPA 1960).

10. Claim 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda as applied to claim 11 above, and further in view of Hoffmeyer.

Matsuda does not disclose a clamping ring.

Hoffmeyer discloses a clamping ring holding a chip, interposer and, circuit board together (17 & 21).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify the device of Matsuda with a clamping ring as taught by Hoffmeyer.

The motivation for this change would be to ensure secure mating between the components.

***Allowable Subject Matter***

11. Claims 5-6, 13-21 and, 24-25 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 33-37 and, 39 allowed.

13. The following is a statement of reasons for the indication of allowable subject matter: If the claim has only one limitation then that is what is allowable.



Regarding claims 33, 36 and 39 the sheet with a hole for the first button and unequal compression of the first and second buttons in the sheet.

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Searls et al and Nakamura both teach buttons that contact each other when compressed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Zarroli whose telephone number is 571-272-2101. The examiner can normally be reached on 7:30 to 3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, T.C. Patel can be reached on (571) 272-2800 ext 39. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael C. Zarroli  
Primary Examiner  
Art Unit 2839

MCZ  
MCZ